$$\sum_{n=1}^{\infty}\frac{U_n}{r^n}=\frac{1}{\sqrt{5}}\left(\frac{a+b\rho_1}{\rho_1(r-\rho_1)}-\frac{1}{\sqrt{5}}\frac{a+b\rho_2}{\rho_2(r-\rho_2)}\right).$$

The right-hand member now reduces to

$$\frac{b+ar-a}{r^2-r-1}$$

when ρ_1 is replaced by $(1+\sqrt{5})/2$ and ρ_2 by $(1-\sqrt{5})/2$.

Note.—We are publishing this solution for the reason that the previously published solution referred to did not consider the question of convergency correctly, and the proper investigation of this question was the Proposer's chief reason for proposing the problem. EDITORS.

ALGEBRA.

429. Proposed by C. N. SCHMALL, New York City.

It is given that d_1, d_2, d_3 are the greatest common divisors of y and z, z and x, x and y, respectively; also that m_1, m_2, m_3 are the least common multiples of the same pairs of members. If d and m are the greatest common divisor and least common multiple, respectively, of x, y, and z, show that

$$\frac{m}{d}=\left(\frac{m_1m_2m_3}{d_1d_2d_3}\right)^{\frac{1}{2}}.$$

SOLUTION BY FRANK IRWIN, University of California.

It is evident that we can get the least common multiple of two numbers by dividing their product by their greatest common divisor:

$$m_1=\frac{yz}{d_1},\quad m_2=\frac{xz}{d_2},\quad m_3=\frac{xy}{d_3}.$$

Similarly with the three numbers x, y, z, if we divide their product by $d_1d_2d_3$, we should have their least common multiple, except that we have divided out d once too often:

$$m=\frac{xyz}{d_1d_2d_3}\cdot d.$$

We have then:

$$\left(\frac{m_1}{d_1}\cdot\frac{m_2}{d_2}\cdot\frac{m_3}{d_3}\right)^{\frac{1}{2}}=\left(\frac{yz}{d_1^2}\cdot\frac{zx}{d_2^2}\cdot\frac{xy}{d_3^2}\right)^{\frac{1}{2}}=\frac{xyz}{d_1d_2d_3}=\frac{m}{d}.$$

Also solved by A. H. HOLMES, ELMER SCHUYLER, G. W. HARTWELL, FRANK R. MORRIS, N. P. PANDYA, HERBERT N. CARLETON, PAUL CAPRON, J. A. CAPARO, and the PROPOSER.

GEOMETRY.

443. Proposed by C. N. SCHMALL, New York City.

A quadrilateral of any shape whatever is divided by a transversal into two quadrilaterals. The diagonals of the original figure and those of the two resulting (smaller) figures are then drawn. Show that their three points of intersection are collinear.

III. SOLUTION BY LAENAS G. WELD, Pullman, Ills.

To the triangle ABC draw the transversals MN, intersecting AB in M and AC in N, and QR intersecting AB in Q and AC in R. Then $BCRQ$, $BCNM$ and